

# THE RED-BROWED FINCH, *AEGINTHA TEMPORALIS*, IN WESTERN AUSTRALIA

By JOHN DELL, Kalamunda.

## SUMMARY

The introduction of the Red-browed Finch (*Aegintha temporalis* Latham) into Western Australia is reported and discussed. The species has been present for at least four years in orchard clearings in Darling Range gullies west of Mundaring Weir. The two flocks, a mile apart, are separated by a Jarrah forested ridge. One flock had a maximum of 30 birds, the other 200, but fluctuations occurred. The habitat includes orchard land, heavily vegetated creeks and paper bark swamps. The small seeds of introduced grasses, chiefly *Poa annua* and *Digitaria sanguinalis*, are the main items of diet. Twelve nests were observed and 48 young reared between July 1963 and February 1964. Nests were built during July, August, October, December and February. Clutches all consisted of four eggs or young. Nest materials included leaves and stalks of food plants, and white feathers. Some comparisons with the Red-eared Fire-tail and possible competition with other native species are discussed.

## INTRODUCTION

Recent observations and the positive identification of a specimen obtained on August 7, 1963, have confirmed the presence of breeding flocks of the Red-browed Finch (*Aegintha temporalis* Latham) in Western Australia. At present they are confined to orchard clearings situated in valleys in the Jarrah forest between Bickley and Mundaring Weir, within 20 miles of Perth. My first observations were made at my home, an isolated orchard on the Mundaring Weir Road three miles west of Mundaring Weir. Flocks were later observed in Hackett's Gully (east of Bickley and about a mile south-west of my home).

In Eastern Australia this species is known as Temporal Finch, Redbill, Waxbill, Sydney Waxbill and Redhead. It is interesting to note, then, that some of the settlers in the Darling Range, although not knowing the specific identity of the bird, called it "Redhead," presumably an allusion to the prominent red superciliary stripe.

The natural range in Australia of this finch extends from Cooktown, Queensland, through eastern New South Wales to Victoria and the Mount Lofty Range in South Australia. It can be assumed that its presence in Western Australia is due to introductions as aviary birds and the subsequent release or escape of sufficient birds to breed successfully in their new environment.

## STATUS OF THE DARLING RANGE POPULATION

Unfortunately many of my first observations took place without realising the identity of the birds, they being thought to be flocks of immature Red-eared Fire-tails (*Zonaeginthus oculatus*) which are present in the same localities. This initial failure to realise the actual species arose from inexperience with plumage changes in *Z. oculatus*, which, in this area, is present in only a few of the gullies to the west of Mundaring Weir.

I cannot state when the birds first appeared, but, judging from the decaying nests in Hackett's Gully, I feel that they have been

present for a minimum of four years. My first records, of October 1962, indicate that they were then fairly common at my home.

It was not possible to count the finches accurately owing to their continual flocking and then scattering. I estimated that the total of the two flocks was 230 individuals.

I have listed the status and fluctuations in more detail under the two flocks; the flock at my home I have termed the Home Flock and the other the Hackett's Gully Flock.

#### (a) Home Flock

A fair estimate for the birds of this flock between June and October 1963 was between 20 and 30 individuals. This, however, was the period of peak numbers of this flock, and later numbers fluctuated.

About mid-November the number of finches diminished suddenly, probably only a group of three birds remaining. I do not know what happened to the birds and if they moved I cannot say in which direction. Numbers were increased by a dozen or so birds during mid-December 1963. These arrivals did not apparently come into close contact with the three already present. At the time of writing (June 1964) the population has diminished again, there now being two groups, one of four individuals and the other of three, probably the same three that remained during the November/December decline.

It is possible that high mortality and predation may contribute to these fluctuations. The peaks may occur when surviving birds have reared young. Domestic cats gone wild are probably the worst predators, especially as the finches are relatively easy prey while feeding on the ground. Goshawks (*Accipiter fasciatus*) have been seen to prey on the finches particularly when they are feeding some distance from cover. The Goshawk swoops low across the ground and pounces before the finches have time to take flight. On one occasion a feeding Goshawk was flushed from the ground. The feathers scattered there were easily identifiable as belonging to the finches. As I moved away from the feathers, several finches flew up and dived for cover. They had been crouched among the grass.

#### (b) Hackett's Gully Flock

The number of finches in Hackett's Gully is much more difficult to estimate, but the local comment of "hundreds," although exaggerated, serves to illustrate that they are both common and conspicuous. I doubt whether there were more than 150 birds prior to the breeding of spring 1963. The number gradually increased throughout the nesting period and the maximum occurred during January and February 1964. I do not think there were more than 200 birds at this peak period.

The number of birds did not remain constant; initially there seemed to be a reduction in individuals when the eggs were in the nests. There was no apparent reduction, however, while eggs were present during December and January. At all times birds were greatly in excess of the numbers breeding.

I did not visit this flock during April 1964. On May 8 when I counted the birds for the first positive count I realised that, where there had previously been perhaps 200, there were only thirteen. By mid-May numbers increased to nearly the former figure. I think that this dramatic decrease was due to a temporary shortage of food, the birds being forced to wander until the supply became plentiful again.

Whether there is any movement or contact between the two flocks is not known. The two flocks could reasonably be expected to have had a common origin being separated by a mile wide ridge heavily forested with Jarrah and Marri.

The only known sighting outside the two localities was made at "Wood St. Mars," the Bickley residence of Mr. W. H. Loaring. He saw a pair feeding on grasses among garden shrubs on one occasion in October 1963. This observation, on the eastern side of the main Piesse Brook Valley, was about half a mile west of the Hackett's Gully flock. Piesse Brook here is nearly all taken up with orchards, and although there are plenty of food plants I do not think there is sufficient cover for nesting and retreat, particularly along the creek.

#### HABITAT

The finches have only been seen near or travelling to and from their feeding grounds on cultivated land. These areas are never more than several hundred feet from more or less native vegetation on the fringes of swampy or heavily vegetated creeks. When disturbed the birds usually take refuge in dense vegetation along the creeks or in citrus trees in the orchards. Occasionally they will seek the nearest tree, post or wire fence. In Hackett's Gully ten or so birds may be seen arranged along the overhead irrigation pipes.

At my home the birds wander throughout an area of thirty acres, mostly grass or orchard land intersected with swamps of Paper Bark (*Melaleuca parviflora* Lindley) and creeks lined with Swamp Peppermint (*Agonis linearifolia* (D.C.) Schau.). Blackbutt (*Eucalyptus patens* Benth.) and Marri with some Jarrah are the common trees although they are now in groves and along the swamp fringes with clearings in between. The swamps are the sources of the creek which drains north to the Helena River.

In Hackett's Gully the main creek runs to the north-west and eventually joins Piesse Brook. There is less native vegetation along the creek as clearing is more extensive. *Melaleuca parviflora* is absent and there are very few Eucalypts in the area inhabited by the finches. The finches are largely confined to the land on either side of the creek on one property. This section of creek is some 400 yards long and the strip of uncleared land is between 10 and 20 yards in width. The creek flows through an open man-made ditch.

The creek vegetation of both localities is essentially similar and very dense, being re-growth resulting from clearing and burning. The major part of the vegetation includes *Agonis linearifolia*, bracken fern, *Acacia* scrub, *Mirbelia dilatata* R.Br., swamp sedge (*Lepidospermum tetraquetrum* Nees), all largely intertwined with Native Dodder (*Cassytha racemosa* Nees).

## FLOCKING AND HABITS

The birds form loose flocks of up to 30 individuals especially when feeding. They may then disperse to unite again at another feeding spot. On May 28, 1963, I recorded: "At my approach they fly up from their feeding ground and shelter in adjoining citrus trees. There they keep up a continual series of chattering cries. The ones I could see nearest to me moved in an unusual jerky bowing movement on the twigs as they uttered their peculiar calls." These call notes were probably a result of my intrusion and were possibly intra-flock warning communications. In any case this chattering was only heard during May/June 1963 when flocking was most persistent. Whenever I moved closer to the birds in the trees they took flight, the birds in the adjoining trees doing likewise, all flying individually to another feeding ground.

The usual call notes are monosyllabic and are uttered while feeding on the ground, perched, or in flight. This call is very similar to one of the calls of the Brown Thornbill (*Acanthiza pusilla*) and could be mistaken for it.

## FEEDING AND FOOD PLANTS

Seeds of introduced grasses constitute the main food, although I have occasionally seen the finches apparently taking food from among *Acacia* scrub when they had been flushed there from their usual feeding place.

Summer or Crab Grass (*Digitaria sanguinalis* (L.) Scop.), a vigorous annual, seeding from December through to the autumn is the chief food grass during this season. After the *Digitaria* has died down the finches still gather to feed from the dry seed heads or from the seeds spilt on the ground. Winter Grass (*Poa annua* L.) is also common throughout the orchards and is the major food plant during winter and early spring. Less common grasses which seed and are eaten during the spring and early summer include *Briza minor* L., *B. maxima* L., and *Aira elegans* Willd.

The flowering heads of annual Veld Grass (*Ehrharta longiflora* Sm.) may also be a minor item of diet. On October 2, 1963, I saw a pair of finches in a rose bush. They were pecking at and apparently feeding on this grass. One bird tugged at and eventually bit off the head of one stalk and sat bobbing up and down with the grass trailing from its beak. The other bird took little notice and they soon departed to some *Poa annua* where they commenced feeding from the ground.

All of the food plants have very small seeds; a factor which should be kept in mind when considering the possibility of the finches becoming a pest. The dimensions of commercial grains are much greater than those of their principal food plants, viz.:

<i>Poa annua</i>	.....	1.7-2.0 mm. (2.0-2.5 mm. including husk)
<i>Aira elegans</i>	.....	1.0 mm. (1.2-1.6 mm. including husk)
<i>Digitaria sanguinalis</i>	.....	2.5 mm. (3.0-3.5 mm. including husk)

It is probable that the seed is eaten both in the husk and as grain after it has fallen to the ground. Commonly the finches may be seen hopping from tuft to tuft of *Poa annua*, feeding on the

fallen seed. *Poa annua*, at least, is eaten at various stages of development, from flowering to the fully ripe grain.

A native sedge, *Lepidospermum tetraquetrum*, was first observed as a food plant during February 1964. Three birds were seen feeding from seed heads amongst thick swamp jungle. This was the first occasion that I had seen the finches feeding while perched, they being carefully balanced on the swaying stalks. At all other times they were feeding from the ground. The Red-eared Fire-tail usually, but not always, seeks an elevated position for feeding. It was observed by Immelmann (W.A. Nat., 7: 145) to feed on the seeds of *Lepidospermum angustatum* R.Br. and *Casuarina*. *L. angustatum* is absent from the areas where the Red-browed Finch is present, and in these areas the Red-eared Fire-tail may feed on the seeds of *L. tetraquetrum*. Species of *Briza* are the only introduced grasses eaten by both finches.

## NESTING

### (a) The Home Flock

The first indication of nesting was April 5, 1963, when, at noon, I saw a bird alight on a garden lantana and then fly across to an empty poultry laying cage where there were numerous feathers. After some hesitation over selection, the bird grappled with a white feather until it was firmly fixed in its beak. It then flew towards the creek. Although I made a search I was unable to find any nest or sign of nest-building.

Further evidence was obtained on July 4 when a single bird was seen calling as it flew into a tall pine tree carrying a long piece of grass. It flew from branch to branch to a considerable height (40 ft.) until it dropped the grass across a twig. The bird then departed in the direction of another calling bird. Such behaviour takes place during pre-nesting courtship of the Red-eared Fire-tail, although in this species the male usually performs various bowing plays in the presence of the female before abandoning the grass. I have only seen the Fire-tail perform during January and February.

On August 5, 1963, three birds were flying north along the creek, whereupon they alighted 20 ft. from the ground on a dead *Banksia*. One bird was carrying a trailing piece of grass which it carefully arranged over a limb. When a New Holland Honeyeater (*Phylidonyris novae-hollandiae*) approached aggressively the finches hurriedly departed leaving the piece of grass.

The first discovery of a nest of this flock was on August 14, 1963. I was watching a flock of some half dozen finches feeding on *Poa annua*, when one bird separated, collected a white feather and flew across a cleared area perching twice en route. The distance of flight was more than 130 yards. After searching among the scrub I found a nest that had recently been commenced. Flimsily made with leaves of *Digitaria*, a strip of *Agonis linearifolia* bark, and the feather, the nest was placed six feet from ground level among *Cassytha* creepers. The birds were not seen to visit the nest again, which after a few days was destroyed by the heavy rains.

No more nesting activity was noticed until November 6, 1963, when a pair of birds were seen taking feathers to a swampy jungle

of *Lepidospermum*, *Agonis*, *Banksia* and *Melaleuca parviflora*, extremely thick from three years' regrowth after a fire. Once again no nest was found, but, judging from the number of feathers they were seen carrying, I am sure nest-building, not courtship, was in progress.

On December 26, 1963, I discovered the nests of the three birds that had remained during November. The three nests were situated 22 ft. from the ground in a *Melaleuca parviflora* growing among *Acacia* and blackboy (*Xanthorrhoea*) scrub about 25 ft. from the creek and 20 ft. from the boundary of a scrub-covered paddock. They were 3 ft. apart, placed in the thickly foliated twigs of the topmost branches of the tree. One, obviously of recent construction, contained four eggs. The nest was 5½ in. high and 9 in. long, including the 2½ in. spout. The second nest, an older one, contained a quantity of finch droppings. A large tree cricket, *Gryllacris marmoriceps* Tepp., was present in the nest. This nest was smaller, 6 in. long and 4 in. high. The third nest, an old disused one, had no spout, no lining and had an accumulation of droppings.

On December 29, 1963, when I revisited the nests the eggs had been abandoned, no doubt due to my intrusions, as the sitting bird had been flushed on my earlier visit.

No successful nesting was observed in the Home Flock during 1963. I have not seen young being fed by adults of this flock, but I think that some young were reared.

#### (b) Hackett's Gully Flock

I did not investigate the Hackett's Gully flock until July 27, 1963, when I received a report of dozens of nests along the creek. As I had not previously visited this locality, it was not until this report that I began to doubt the identity of the birds there. I had occasionally been given reports of Red-eared Fire-tails there and had even been given a damaged nest supposedly belonging to the Fire-tail that had been blown from an apple tree during strong winds in March 1963.

On my first visit I counted 24 nests, 16 of which were in the spiny *Mirbelia dilatata* and eight in *Agonis linearifolia*. Although one-third of the original nests were in *Agonis*, this shrub does not appear to be favoured as a nesting site and may only have been used because every *Mirbelia* of suitable bushiness was already occupied, except for one or two scraggly ones which were used at a later date.

TABLE 1.—POSITIONS OF ALL NESTS IN HACKETT'S GULLY.

	Situation	
	<i>Mirbelia dilatata</i>	<i>Agonis linearifolia</i>
Old nests	11	8
Nests in use	14	0
Total nests	25	8
Maximum height above ground	13 ft.	12 ft.
Minimum height above ground	4 ft.	6 ft.
Average height above ground	8 ft.	9 ft.

Nine new nests were constructed between August 1963 and February 1964. By February 20 I had observed 33 nests including the disused ones. All these are summarised in Table 1.

Variations in height above ground were due to the various heights of the individual bushes, the nests being placed in the thickest foliage towards the tops of the bushes.

Of the five nests in use on July 27, 1963, two contained eggs and the remaining three were nearing completion. These were finished by August 2. A week later, August 9, when I again visited the nests the first two had young and the other three were being brooded. With the exception of one nesting pair the other four pairs of birds successfully raised their broods. On August 23, the unsuccessful nest contained dead chicks infested with blowfly maggots (*Calliphoridae*). The species was not identified, the maggots dying before pupation.

No new nesting activity was recorded for September. In October there was a fresh spate of nesting with eight new nests being constructed and broods successfully raised in seven. Eggs were laid in the various nests between October 15 and 25. The nest that did not raise a brood contained an exceptionally large tree cricket (*Gryllacris marmoriceps*), the same species that was present in a nest of the Home Flock. The nest contained three eggs and I feel that desertion arose from the presence of this formidable insect. This cricket, a nocturnal one, is common under the bark of Marri trees and has been observed on occasion in nests of the Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*).

Another nest contained eggs on December 26, 1963, and once again nesting was successful.

The latest nest was reported to me on February 15, 1964. This nest was in an isolated *Mirbelia dilatata* 15 yards from a house and 60 yards from the creek. I investigated the nest on February 18 and, although it seemed complete, there were no eggs. Three eggs were present on February 21, and four on February 22. Brooding apparently commenced immediately. A report on March 7 indicated that the first egg hatched that morning—an incubation period of 14 days. Cayley (*Australian Finches*) gives 13 days as the incubation period in captivity. The young left the nest on March 22—a fledgling period of 15 days—and did not return.

Of a total of fourteen nests investigated, all contained either a clutch of four eggs or four chicks. The twelve broods successfully reared increased the population by 48 individuals, approximately one-quarter increase in one year assuming that the population estimate of 150 in July 1963 was approximately correct.

#### COMPARISONS OF THE BREEDING FLOCKS

Both flocks have a prolonged breeding season, from July to at least March, and possibly throughout the year. Table 2 briefly summarises nesting activity between July 1963 and March 1964.

In Haekett's Gully all nests were placed in either *Agonis linearifolia* or *Mirbelia dilatata* at heights varying from 4 to 12 ft. Nests of the Home Flock were placed in *Melaleuca parviflora* at a

TABLE 2.—COMPARISONS OF THE NESTING DATES OF THE TWO FLOCKS, 1963-1964.

Home Flock		Hackett's Gully Flock	
July 4:	Nest material gathered	July 27:	2 nests with eggs; 3 under construction
Aug. 5, 14:	Nest material gathered	Aug. 2:	2 nests with young; 3 being brooded
Sep.:	No nesting activity recorded	Sep.:	No nesting activity recorded
Oct.:	No nesting activity recorded	Oct. 18-25:	8 nests with eggs
Nov. 6, 10:	Lining material gathered	Nov.:	Young in above nests
Dec. 26:	Nests with eggs	Dec. 26:	Nest with eggs
Jan.:	No nesting activity recorded	Jan.:	Young in above nest
Feb.:	No nesting activity recorded	Feb. 20:	Eggs laid in nest

height of 22 ft. It should be stressed that *Melaleuca* is absent in Hackett's Gully, as also are other trees of similar height.

### NEST CONSTRUCTION

Nests of both flocks were composed largely of the leaves, stalks, and flower and seed stems of several of the food plants. *Digitaria sanguinalis*, a long stemmed plant, usually constitutes the bulk of the nest material. The spouts of the October-constructed nests were lined with flowering stalks of *Aira elegans*. The perennial herb, *Opercularia vaginata* Labill. is the only native plant used considerably and then only by the Home Flock. Nests are usually lined with white fowl feathers if available. Birds of the Home Flock have always had a ready supply, but birds in Hackett's Gully have not always been so fortunate. Domestic poultry was not introduced there until August 1963. Earlier nests had either no lining or a scanty furnishing of *Aira elegans* flower stalks. *Banksia* or *Macrozamia* wool was not used. With the introduction of poultry to Hackett's Gully in August it was interesting to observe how rapidly the birds of nearly completed nests took advantage of an unlimited supply of lining material. The fowl shed was about 50 yards from the nearest nests and 200 yards from the furthest. Apparently birds would not travel for more than 170 yards with feathers and so the three nests beyond this distance were unlined.

Only white feathers were available in Hackett's Gully, but the Home Flock had the choice of white or black in unlimited numbers. White was invariably chosen. On one occasion in Hackett's Gully two nests did contain brownish grey feathers from an unknown source.

### RELATIONS WITH OTHER SPECIES

Since I have been observing the finches I have recorded the following birds as permanent residents in the same habitat: Spotted Scrub Wren (*Sericornis maculatus*), Banded Blue Wren (*Malurus*

*splendens*), Red-winged Wren (*M. elegans*), New Holland Honey-eater (*Phylidonyris novae-hollandiae*), Brown Thornbill (*Acanthiza pusilla*), Yellow-tailed Thornbill (*A. chrysorrhoa*), Silvereye (*Zosterops gouldi*) and Grey Fantail (*Rhipidura fuliginosa*). Other species, nomadic or migratory, include: Elegant Parrot (*Necophema elegans*), Golden Bronze Cuckoo (*Chrysococcyx lucidus*), Pallid Cuckoo (*Cuculus pallidus*), Western Warbler (*Gerygone fusca*) and Western Thornbill (*Acanthiza inornata*). The first group of permanent residents are of supreme importance in any discussion regarding displacement through competition of available food supply, nesting territory, nest situations and supply of nest material. From the discussion on feeding it has been emphasised that introduced grasses are eaten and only those with small seeds. Apart from the Elegant Parrot, no other species has been recorded eating similar seeds. The Elegant Parrot, since its erratic build-up locally since 1962, has often been observed feeding on the seeds of *Poa annua*. On several occasions in Hackett's Gully I have seen both the Elegant Parrot and the Red-browed Finch feeding on this grass within a few feet of each other.

January 1964 was the first time I was fortunate enough to study closely how the two finches, the Red-browed and the Red-eared Fire-tail, behaved towards each other. One morning a pair of Red-browed Finches was feeding on spilt grass seeds near the edge of uncleared land. They seemed very agitated and frequently flew up to look round. Soon after, a Red-eared Fire-tail approached and the Red-browed Finches departed hurriedly. Other similar observations have convinced me that the introduced finch is not at all aggressive towards the Fire-tail, the reverse being the case. Although the Red-eared Fire-tail is much more approachable than the Red-browed, it prefers to remain near the edge of heavy vegetation and will only feed out in the open if there is some cover very close. The manner of feeding on spilt seeds is very similar to that of the Red-browed Finch, and the hopping among the dry grass is almost identical.

Competition for nesting territory has not apparently displaced any of the resident species during the breeding season under observation. Spotted Scrub-Wrens and Banded Blue Wrens were recorded with nests in the same area where the finch nests were situated. I think that the Red-winged Wren nested also; the young were seen being fed by adults.

The position of the nests is another point of interest. The Red-browed Finch is the only bird I know that builds in the prickly *Mirbelia dilatata* in fairly open positions between 6 and 12 ft. from the ground. In similar situations most other birds nest lower and usually have the nest well concealed.

Nest material is not important as the supply is plentiful, except, perhaps, the material used for lining. This could only affect birds that build hooded nests lined with feathers.

With present information it is not possible to state any inimical effects. The finches only inhabit areas where clearing and destruction of habitat has decreased native species.

## ACKNOWLEDGMENTS

I am grateful to: Mr. R. D. Royce, Government Botanist, for identification of plant specimens and information on grain sizes; and Mr. L. E. Koch, Curator of Entomology at the W.A. Museum, for identification of insects mentioned. To Dr. G. M. Storr, Curator of Vertebrates at the W.A. Museum, I am particularly indebted for encouragement, discussion and criticism of the manuscript.

## FEEDING NOTES ON THE WHITE-TAILED BLACK COCKATOO

By ANGUS ROBINSON, Coolup.

The feeding of these Cockatoos (*Calyptorhynchus baudini*) on the pupae of a braconid wasp which inhabits the galls on *Banksia attenuata* I do not think has been previously recorded. *B. attenuata* grows profusely in the higher sandy country at Coolup in conjunction with Marri (*Eucalyptus calophylla*) and Jarrah (*E. marginata*). Many trees of *B. attenuata* reach a height of over 40 ft. *B. attenuata* flowers in November with a long yellow spike similar to that of *B. littoralis*, which is found in the same area but grows in low wet patches and flowers in March. *B. attenuata* varies considerably from year to year in the amount of blossom—1963 was very good but 1962 was very poor. Some years it suffers from the attacks of insects which cause galls, up to 18 in. long and 1 in. in diameter, along the stems. These galls can be so numerous in some seasons as to cause the death of the tree. Though in 1962 these banksias were badly infested by galls there is evidence on dead trees on my farm of much greater infestation formerly. The gall infestation probably has some effect on the flowering, as in 1962 new galls were numerous.

On November 3, 1962, I found a flock of Black Cockatoos sitting on the top of the banksias tearing to pieces the galls just below the leaf spike. The ground underneath was littered with leaf spikes and bits of gall. Some of these galls were collected. It was found that there were many kidney-shaped cavities at right angles to the stem with the outer edge just under the bark. These cavities contained small pupae of a greyish white colour with black eye dots. Some of these pupae enclosed in pieces of gall were put in a sealed envelope and others in preservative.

On November 17, 1962, the sealed envelope was opened. The only active living things seen were two very small black wasps. At this stage the pupae showed no sign of emerging and the cockatoos were still spending much time dissecting the galls.

Mr. L. E. Koch, of the W.A. Museum, identified the very small black wasps as a gall-producing species of the Cynipidae and the brown wasp pupae as a parasitic species of the Braconidae.

Over the next two weeks the galls dropped by the cockatoos were examined. On November 30 the braconid adults were emerging. They were brown with long antennae and long tail spike or ovipositor—not like the small black cynipid wasps.